

SOV/120-59-2-26/50

An Economical Scaler Based on Magnetic Cores

shown in Fig 5. The stored information is not lost even if the power is disconnected, but additional circuits are required if the stored data must be read off.

There are 5 figures and 4 references, all of which are English.

Card 2/2

SUBMITTED: February 26, 1958

KUROCHKIN, S.S., kand. tekhn. nauk, red.; MATVEYEV, V.V., kand. fiz.-mat. nauk, red.; ZHERNOV, V.S., red.; KUZNETSOV, K.F., red.; LAZAREV, A.F., red.; MAMIKONYAN, S.V., glav. red.; NEMIROVSKIY, B.V., red.; POLIKARPOV, V.I., red.; KHAZANOV, B.I., red.; ERGLIS, K.E., zam. glav. red.; SHIRSHOV, D.P., red.; ANDREYENKO, Z.D., red.; VLASOVA, N.A., tekhn. red.

[Apparatus for nuclear spectrometry; collection of scientific and technical articles] Apparatura dlia iadernoi spektrometrii; nauchno-tekhnicheskii sbornik. Moskva, Gos. izd-vo lit-ry v oblasti atomnoi nauki i tekhniki. No.1. 1960. 131 p. (MIRA 14:7)  
(Spectrometry) (Nuclear research)

29092

S/597/60/000/001/002/005

B102/B138

5 5500

Khazanov, B. I.

The possibilities of gamma proportional counters in radio-chemical analysis

PERIODICAL.

Apparatura dlya yadernoy spektrometrii, no. 1, 1960, 41 - 58

TEXT: The article reviews construction and use of proportional counters for detection of soft gamma radiation. These counters consist of a gas-filled metal tube with a central metal thread and are equipped with a window. Beryllium was found to be the best window material and aluminum the best material for the body of the counter. The filler gas includes  $\text{CH}_4$  for stabilization of amplification stabilization and  $\text{CO}_2$  to increase the drift rate. The main characteristic of a detector is its efficiency. Comparison of experimental data show that argon-filled counters may be used for recording soft-radiation and Kr and Xe counters for hard. The filler gas determines not only the recording efficiency but also the character of the spectrograms. Results are best when the whole energy of the incident photon

Card 1/3

29092  
S/597/60/005/001/002/005  
B102/B138

The possibilities of gamma...

is transferred to the counter gas. The main role in quantum absorption is played by the photoeffect in the gas (emission of photoelectrons of Auger electrons. The character of the spectrum is also affected by fluorescence; this effect increases with the atomic weight of the gas. The photoelectron ranges increase rapidly with increasing energy and, especially in argon-filled counters, the ranges become such that most of the electron energy is transferred to the counter walls. This "wall effect" becomes a main problem for electron energies above 100 kev. A counter 5 cm in diameter records only 10% of electrons if their range is 1.25 cm. A counter with good electrical characteristics must first display good linearity. Undistorted reproduction of the spectra depends on the gas amplification factor and on the pulse frequency. The energy resolution depends on noise level, voltage supply, and on constructional details of the counter. The diameter of the counter thread is most critical and should be as constant as possible. For gas amplification factors between 10 and 50,000 the pulse amplitude  $u = e \cdot 0.01U$ , and a voltage change of 1v causes an amplitude change of 1%. Since Ar counters work at 1000 and Xe counters at 2000 v. voltage has to be constant to 0.1 and 0.05% respectively. Besides external fluctuations, there are internal ones which also have an effect, e.g. fluctuations in

Card 2/3

GORN, L.S.; KHAZANOV, B.I.

Precision mean counting-rate meter. App.dlia iad. spek. no.1:77-  
83 '60. (MIRA 14:8)

(Radiation—Measurement)

GORN, L.S.; IVANOV, I.D.; KHAZANOV, B.I.

Characteristics of a precision single-channel amplitude  
analyzer. App.dlia iad. spek. no.1:93-108 '60.

(MIRA 14:8)

(Spectrometer)

GORN, L.S.; IVANOV, I.D.; KHAZANOV, B.I.

Automation of measurements of amplitude distribution.  
App.dlia iad. spek. no.1:109-115 '60. (MIRA 14:8)  
(Spectrometer)

Y-15.  
J6W/100-15-3-5/17

AUTHOR: Nosen, Yu. P., Khramov, B. I.

TITLE: Equation of Thermal Stability of Various Types of Transistor Voltage Amplifiers

PERIODICAL: Radiotekhnika, 1960, Vol 15, Nr 3, pp 38-44 (USSR)

ABSTRACT: The paper derives the equation of thermal stability for a transistor voltage amplifier whose circuit diagram is shown in Fig. 1.

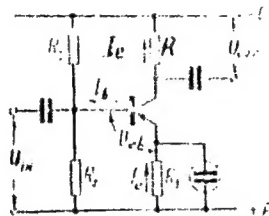


Fig. 1.

card 1/4



Equation of Thermal Stability of Various  
Types of Transistor Voltage Amplifiers

78145  
SOV/108-15-3-8/17

Under the assumption that  $R_1 \ll r_c$  within the entire interval of possible temperature changes, it is shown that the condition for thermal stability of the above amplifier may be written as:

$$\frac{\Delta I_c}{I_c} = \frac{\Delta T}{T} (1 + \gamma) - \frac{\Delta \beta}{\beta} \left( \frac{1 + \gamma}{\beta} + \gamma \right). \quad (9)$$

where  $\gamma$  is a coefficient depending on the transistor type, and is related to the mobility  $\mu$  of the charge carriers in the manner:

$$\mu \sim T^{-1}, \quad (5)$$

In Eq. (9),  $\gamma = r_{bo}^1 / r_c$ , where

$$r_c = \frac{n k T}{e I_c}; \quad r_{bo}^1 = r_{bo} (1 - \alpha).$$

Card 2/4

Equation of Thermal Stability of Various  
Types of Transistor Voltage Amplifiers

78145  
30V/103-15-3-8/17

Here,  $r_{bc}$  is the part of base resistance which does not depend on emitter current  $I_e$ . It is stated that in most practical problems the term with  $\Delta\beta$  may be neglected. However, in the case of a silicon transistor this term must be taken into account. Based on Eq. (9), the cases  $\kappa \ll 1$  and  $\kappa \gg 1$  are discussed. An equation of thermal stability for computation purposes is obtained for germanium transistors and may be applied to various types of Soviet transistors. From the obtained results, the following conclusions are drawn: (1) In the case of small emitter currents, thermal stability is assured by changes in emitter currents, these being related to temperature in a simple manner. (2) In the case of large emitter currents, thermal stabilization is possible only for high values of  $\alpha$  and for small  $r_b$ . (3) In the case of silicon transistors, there is a lower limit for permissible  $I_e$  values.

Card 3/4

(4) Thermal stabilization at a constant  $I_e$  is possible

Equation of Thermal Stability of Various  
Types of Transistor Voltage Amplifiers

78145  
SOV/108-15-3-8/17

only in the case of silicon transistors. Thus a d-c voltage amplifier may be designed using silicon transistors only. There are 2 figures; 2 tables; and 6 references, 1 Soviet, 5 U.S. The U.S. references are: M. Lin, E. Crosby, IRE Nat. Conv. Rec., Nr 3, 22, 1957; M. Tanenbaum, D. E. Thomas, BSTJ, XXXV, 1, 1956; Chin-Tang Sah, R. Noyce, W. Shockley, PIRE, 45, 1228, 1957; F. I. Morin, I. P. Malta, Phys. Rev., 96, 29, 1954; M. Prince, Phys. Rev., 92, 681, 1953.

SUBMITTED: April 3, 1959

Card 4/4

GORN, L.S.; KHAZANOV, B.I.; PCHELINTSEVA, G.M., red.; VLASOVA, N.A.,  
tekhn. red.

[Transistors in radio measurement equipment] Tranzistory v radio-  
metricheskoj apparature. Moskva, Gos.izd-vo lit-ry v oblasti atom-  
noi nauki i tekhniki, 1961. 170 p. (MIRA 14:12)  
(Transistors) (Radio measurements)

**"APPROVED FOR RELEASE: 09/17/2001**

**CIA-RDP86-00513R000721920018-1**

**APPROVED FOR RELEASE: 09/17/2001**

**CIA-RDP86-00513R000721920018-1"**

"APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000721920018-1

DATE: 10/11/80 ENCL: 00

APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000721920018-1"

20693

9,4310 (1141,1150,1154,1155)

S/120/61/000/001/031/062  
E194/E184

AUTHORS: Gorn, L.S., and Khazanov, B.I.

TITLE: A Reversible Coding Circuit Based on Ferrite-  
Transistor Cells

PERIODICAL: Pribery i tekhnika eksperimenta, 1961<sup>6</sup>, No.1, pp.102-103

TEXT: Ferrite-transistor cells are used to measure the difference between the number of impulses received from two detectors in solving problems associated with the recording of radioactive radiations. This article briefly describes a ferrite-transistor difference reversible coding circuit, the circuit diagram of which is given in Fig.1. For simplicity this shows only two binary cells. The binary cell consists of two blocking generators between which the coupling transformers are based on ferrites with square hysteresis loops. The nominal direction of magnetisation of the ferrite in the circuit coincides with the direction of flow of current in the windings. Each of the transformers has five windings, of which numbers 1 and 2 are base and collector windings of the blocking generator of the cell, 3 and 4 are starter windings and 5 is a coupling winding with the Card 1/ 4

20693

S/120/61/000/001/031/062  
E194/E184

A Reversible Coding Circuit Based on Ferrite-Transistor Cells

selector circuit of the second cell of the trigger. A current impulse applied to the starter circuit displaces the operating point on the magnetic characteristic of the core. For core  $T_{p2}$  the point is on the horizontal section of the characteristic and regeneration is impossible. For the core  $T_{p1}$  the working point is rapidly displaced to the bend in the magnetic characteristic after which the blocking process occurs. During the process of regeneration of the impulse the current of the triode  $T_1$  acts through the coupling winding on the core  $T_{p2}$  to reverse its condition. An impulse of positive voltage is developed in the collector triode  $T_1$ . As the next current impulse is applied to the starter circuit the core again alters its direction of magnetisation and returns to the initial condition. This is accompanied by the development of positive voltage impulse in the collector triode  $T_2$ . The binary triggers are connected in series through diodes with series resistances which govern the amplitude of the starting current impulse. In the initial condition when there is no signal the cells take no current.

Card 2/ 4



20693

S/120/61/000/001/031/062

E194/E184

**A Reversible Coding Circuit Based on Ferrite-Transistor Cells**

The starting windings are connected to the outputs of the repeater emitters  $T_5$  and  $T_6$  which are normally closed. Simultaneously with the application of starting signals to input I (subtraction) formed impulses are applied to the repeater emitter  $T_5$ . The output impedance of the open emitter repeater is low and the triode  $T_5$  which had previously kept open the coupling circuit between the triggers now closes. On application of the input signal II (addition) a similar impulse is applied to the emitter of repeater  $T_6$ . The duration of control signals is made somewhat greater than the possible delay time of operation of the last trigger relative to the input signal. The actual system consists of a diode-triode coincidence circuit where the current resulting in the presence of coincidence is used to start a ferrite-transistor cascade. This is a simple circuit with few parts. The semiconductor triodes act as keys so that the demands made on them are not stringent and the circuit is not critical to change of parts or to variations in supply voltage. Moreover, the coupling transformers reduce to a minimum the influence of

Card 3/4

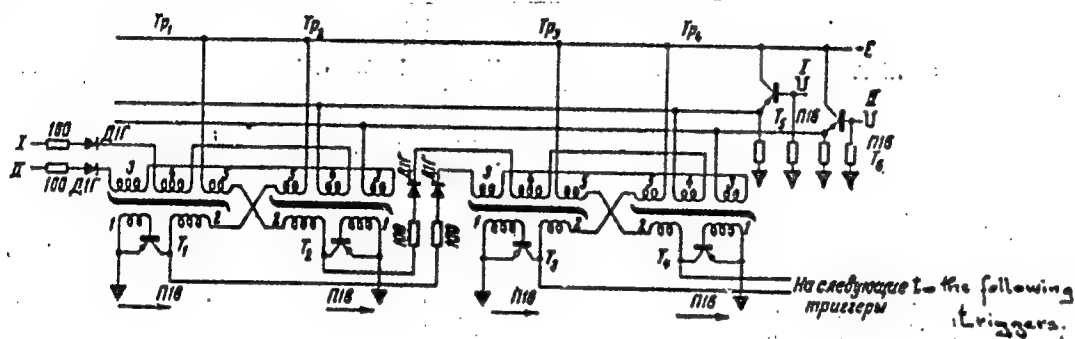
20693

5/120/61/000/001/031/062

A Reversible Coding Circuit Based on ..E194/E184

out-of-balance current and the temperature limits of operation of the circuit are determined only by changes in the coercive force of the magnetic cores.

There are 1 figure and 1 Soviet reference.



Card 4/4

Fig.

21402

S/120/61/000/002/013/C42  
E192/E382

9.7500

AUTHORS: Gorn, L.S., Ol'dekov, L. G. and Khazanov, B.I.

TITLE: A Reversible Dekatron Counter

PERIODICAL: Priboi i tekhnika eksperimenta, 1961, No. 2,  
pp. 83 - 85

TEXT: A counter circuit capable of registering directly the difference in the counting speeds of two channels is very useful in evaluating the background radiation, determining the difference in the amplitude-distribution spectra and other measurements. The reversible counters based on vacuum tubes are known (Ref. 1) but they are not entirely satisfactory due to their complexity. The two-pulse dekatron, type OF-5 (OG-5), can be used in the reversible counters in view of their symmetrical construction. The resulting circuits are comparatively simple. Constructionally, a dekatron is provided with a cylindrical anode which is surrounded by a set of 30 rods playing the part of sub-cathodes (for transferring the glow discharge) and cathodes (Ref. 2). There are various possibilities of arranging the drive circuits for the dekatrons

Card 1/6

211.01

S/120/61/000/002/013/042  
E192/E382

A Reversible Dekatron ....

and the system adopted by the authors is illustrated in the figure. In this the triggering of the dekatrons is performed by amplifying stages. The principle of operation of the counter given in the diagram is as follows. The triggering circuit is based on a double triode  $\mathcal{J}_1 (= L_1)$ , which drives the dekatron  $L_2$ . Two RC networks are connected between the anode resistors of this amplifying stage; these provide a different sequence of the output pulses, depending on whether the input signal is applied to the righthand or lefthand half of the tube. The signals applied to the righthand-side triode are taken from the adding input stage and produce a negative pulse at the anode load. This pulse is differentiated by one of the networks and integrated by the other network; a time shift between the two pulses is thus produced. The differentiated pulse is applied to the first sub-cathode of the dekatron and the integrated signal (delayed in time) to the second sub-cathode. In this way the information applied to the dekatron "moves" clockwise. The signals from the

Card 2/6

21402

S/120/61/000/002/013/042  
E192/E382

A Reversible Dekatron ....

subtraction input stage (see the figure) are applied to the lefthand-side triode; the signal produced across the anode load is again differentiated and integrated but the rôle played by the two networks is now reversed. Thus, the differentiated signal is applied to the second sub-cathode, while the integrated pulse is fed to the first sub-cathode. Consequently, the discharge in the dekatron "moves" anti-clockwise. When several reversible dekatron stages are to be connected, it is necessary to obtain two signals at its output: one of these corresponds to the transition of the dekatron through zero, while the information is added, and the second signal corresponds to the transition from zero during subtraction. Consequently, each stage of the counter (except the first) is provided with a thyatron relaxation pulser (based on  $L_4$ ) and a limiter amplifier  $T_7$  based on a transistor, type  $\Pi 11$  (P11). A positive pulse is produced across the cathode load of the thyatron when the dekatron reaches its zero state. This signal is differentiated and applied to the grid of the righthand-side triode  $L_3$  (addition). As regards the

Card 3/6

"5.7.7"

21402

S/120/61/000/002/013/042  
E192/E382

A Reversible Dekatron ....

transistor  $T_7$ , its collector load is chosen so that it operates under saturation conditions when the dekatron is in its zero state. The transition of the cathode from the zero state results in the elimination of the saturation current and a positive pulse is produced at the collector of  $T_7$ ; this is then applied to the lefthand-side grid of the double triode  $L_3$  (subtraction). The subtraction signal will be obtained every time the dekatron undergoes transition from its zero state into the position "9" as well as into the position "1". The thyatron  $L_4$  operates in a similar way so that the output signals are ambiguous. The situation is rectified by introducing a coincidence circuit. Thus, normalising univibrators are provided at the inputs of the two channels;  $T_1$  and  $T_2$  at the input of the adding channel and  $T_4$  and  $T_5$  at the subtraction input. The signals produced by these univibrators are amplified by emitter followers  $T_3$  and  $T_6$ .

Card 4/6

21402

S/120/61/000/002/015/042

E192/E332

A Reversible Dekatron ....

from where the positive pulses are applied to diode coincidence circuits. In the addition channel, this circuit is based on diodes  $A_5 (= D_5)$  and  $D_6$ . In the subtraction channel, the circuit is based on  $D_3$  and  $D_4$  and this

permits the transmission of the signal to the next stage only in the case when the dekatron undergoes a transition from the zero state to the position 9. A counter capable of registering 100 000, based on 5 dekatrons type OG-5, 5 triodes, type 6H6P (6N6P) and 10 transistors as well as 4 thyratrons, was built on the basis of the above circuit. The equipment was stable in operation when the supply voltage was varied by  $\pm 10\%$ . There are 1 figure and 3 references: 1 Soviet and 2 non-Soviet.

SUBMITTED: February 26, 1960

Card 5/6

BOGDANOV, A.A.; CORN, L.S.; KHAZANOV, B.I.

Ferrite-transistor decade of higher resolution. Prib. i tekhn.  
eksp. 6 no.2:87-88 Mr-Ap '61. (MIRA 14:9)  
(Nuclear counters)



GORN, L.S.; ZHURINA, L.S.; KHAZANOV, B.I.

Spectrometric amplifier with semiconductor triodes. Prib. 1  
tekh. eksp. 6 no.2:89-90 Mr-Ap '61. (MIRA 14:9)  
(Amplifiers (Electronics))

GORN, L.S.; KHAZANOV, B.I.

Use of an emitter follower for the conversion of the current pulse of  
a photoelectron multiplier to a voltage pulse. Radiotekh. i elektron.  
no. 6:1010-1014 '61. (MIRA 14:6)  
(Cathode followers) (Electric current converters)

9.6000

S/120/62/000/006/012/029  
E140/E435

AUTHOR: Khazanov, B.I.

TITLE: Vacuum-tube-transistor circuits in economical  
radiometric devices

PERIODICAL: Pribory i tekhnika eksperimenta, no.6, 1962, 70-74

TEXT: The input impedances of transistors are not satisfactory for a number of instrument applications. The author describes a number of circuits combining direct-heated vacuum tubes with transistors to obtain desired characteristics of low consumption and satisfactory performance in radiometric devices. The following circuits are described: d-c amplifier, intensimeter for low counting rates, stabilized high-voltage source, trigger circuit and pulse counter based on capacitive storage of normalized impulses. There are 5 figures. ✓

SUBJECT: January 26, 1962

Card 1/1

BABICHENKO, S.I.; BOGDANOV, A.A.; GORN, L.S.; KAGAN, M.L.; KRYLOV,  
L.N.; OL'DEKOP, L.G.; KHAZANOV, B.I.; MELESHKO, V.K., red.;  
DRUZHININA, L.V., tekhn. red.; POPOVA, S.M., tekhn. red.

[Radiometric process instrumentation] Kontrol'no-izmeritel'-  
naia radiometricheskaia apparatura. [By] S.I.Babichenko i dr.  
Moskva, Gosatomizdat, 1963. 148 p. (MIRA 16:12)  
(Radiometry)

GORN, L.S.; KRASHENINNIKOV, I.S.; KHAZANOV, B.I.; MELESHKO, V.K.,  
red.; VLASOVA, N.A., tekhn. red.

[Electronics in nuclear spectrometry] Elektronika y spektrometrii  
iadernykh izlucheni. [By] L.S. Gorn, I.S. Krasheninnikov, B.I.  
Khazanov. Moskva, Gosatomizdat, 1963. 291 p. (MIRA 16:3)  
(Nuclear counters) (Spectrometry)

ACCESSION NR: AT3012186

S/2963/63/000/005/0063/0079

AUTHORS: Gorn, L. S.; Khazanov, B. I.

TITLE: Transistorized amplitude time converter for multichannel analyzers

SOURCE: Mnogokanal'ny\*ye izmeritel'ny\*ye sistemy\* v yadernoy fizike. Nauchno-tekhnicheskiy sbornik. Moscow, no. 5, 1963, 63-79

TOPIC TAGS: multichannel analyzer, transistorized multichannel analyzer, amplitude time conversion, transistorized input unit, temperature dependence

ABSTRACT: It is pointed out that the multichannel-analyzer elements most difficult to transistorize are the measuring units, since the temperature dependence of the transistor parameters, the fact that the input circuit of the conducting transistor draws current, and the fact that an uncontrolled collector current flows all great-

Card 1/3 2

ACCESSION NR: AT3012186

ly influence the accuracy of the measurements. Consequently different circuits are considered for transistorized multichannel-analyzer input units, in which measures are taken to ensure that the accuracy is not worse than that of vacuum tube units. Since most multichannel analyzers use input units that convert the amplitudes of the incoming signals into time intervals by charging and discharging a capacitor, these operations are considered in greatest detail. An amplitude-time converter circuit with transistors is described and its errors analyzed. Orig. art. has: 5 figures and 20 formulas.

ASSOCIATION: None

SUBMITTED: 00

DATE ACQ: 16Oct63

ENCL: 01

SUB CODE: NS, SD

NO REF SOV: 002

OTHER: 002

Card 2/3/2

ACCESSION NR: A24022430

S/0056/64/000/001/A027/A027

SOURCE: RZh. Fizika, Abs. 1A256

AUTHOR: Gorn, L. S.; Ivanov, I. D.; Khazanov, B. I.

TITLE: Single channel amplitude-time transistorized analyzer

CITED SOURCE: Tr. 5-y Nauchno-tekhn. konferentsii po yadern. radioelektronike. T. 2. Ch. 1. M., Gosatomizdat, 1963, 107-113

TOPIC TAGS: amplitude time analyzer, transistorized analyzer, single channel analyzer, two dimensional analyzer, anticoincidence circuit, differential discriminator

TRANSLATION: A single-channel amplitude-time transistorized analyzer, which is the simplest variant of a two-dimensional analyzer, is described. The analyzer has two inputs, one for the investigated pulses from the pickup and the other for the starting signal. The

Card 1/2



ACCESSION NR: AR4022430

signals from the pickup are selected by a single-channel differential discriminator which turns on the amplifier, the upper and lower level discriminators, and the anticoincidence selection circuit. The starting signal triggers in succession two stages that generate signals of fixed duration; one sets the delay of the time interval relative to the starting signal and the other sets the magnitude of this interval. The pulse from the timing channel opens a gating unit whose pulses are fed to the recorder. The latter fixes the number of pulses corresponding to a definite radiation energy and lying within a definite time interval, which can be shifted relative to the starting signal. The operation of individual analyzer elements and units is examined in detail. L. I.

DATE ACQ: 03Mar64

SUB CODE: PH

EXCL: 00

Cor2/2

**"APPROVED FOR RELEASE: 09/17/2001**

**CIA-RDP86-00513R000721920018-1**

**APPROVED FOR RELEASE: 09/17/2001**

**CIA-RDP86-00513R000721920018-1"**

**"APPROVED FOR RELEASE: 09/17/2001**

**CIA-RDP86-00513R000721920018-1**

**APPROVED FOR RELEASE: 09/17/2001**

**CIA-RDP86-00513R000721920018-1"**

**"APPROVED FOR RELEASE: 09/17/2001**

**CIA-RDP86-00513R000721920018-1**

**APPROVED FOR RELEASE: 09/17/2001**

**CIA-RDP86-00513R000721920018-1"**

**"APPROVED FOR RELEASE: 09/17/2001**

**CIA-RDP86-00513R000721920018-1**

**APPROVED FOR RELEASE: 09/17/2001**

**CIA-RDP86-00513R000721920018-1"**

"APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000721920018-1

Page 3/3

APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000721920018-1"

"APPROVED FOR RELEASE: 09/17/2001

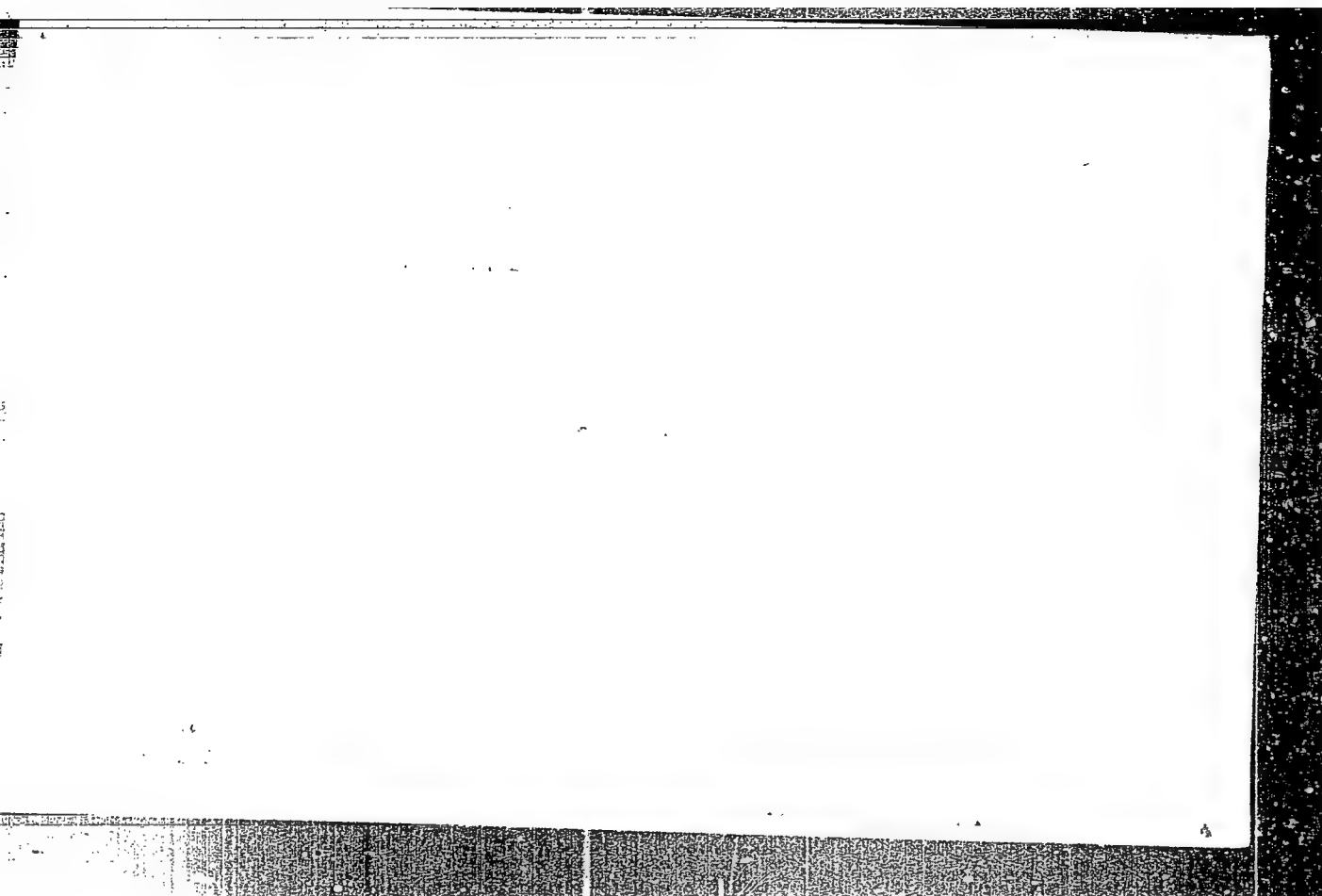
CIA-RDP86-00513R000721920018-1

APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000721920018-1"

**"APPROVED FOR RELEASE: 09/17/2001**

**CIA-RDP86-00513R000721920018-1**



**APPROVED FOR RELEASE: 09/17/2001**

**CIA-RDP86-00513R000721920018-1"**



ACCESSION NR: AP4012267.

S/0089/64/016/001/0058/0060

AUTHORS: Gorn, L. S.; Khazanov, B. I.

TITLE: On the instrumental error in determining the intensity of overlapping spectral lines.

SOURCE: Atomnaya energiya, v. 16, no. 1, 1964, 58-60

TOPIC TAGS: energy resolution, spectral lines, emitter, spectrogram, instrument drift, energy scale, discriminator, Gauss curve, spectrometer, spectrometer channel, detector

ABSTRACT: Whenever the energy resolution of a detector is inadequate, and two closely arranged spectral lines with a certain energy are combined, the relative content of emitters in a preparation can be determined by the difference method. A similar method can be used to determine the intensity of the emitters producing closely arranged lines on a spectrogram; but the required accuracy involves some practical limitations. The use of the difference method increases considerably the statistical error in the determinations, which calls for a longer measuring time. Another important factor in this con-

Card 1/2

ACCESSION NR: AP4012267

nection is the instrumental error. The drift of the instrument occasioned by the changing energy scale (the changing amplification factor and discrimination threshold), as well as the changing channel width, produces a difference between the initial and real coefficients. The test results show that the error may amount to dozens of percents, particularly in the case of a narrow channel width and the measurement of a faint line against the background of a more intensive line. Thus the instrumental error may be found to be comparable to the methodical or statistical error, and should be taken into account. By determining the maximum permissible instrumental error it is possible to estimate the instrument stability required for particular measurements. Orig. art. has: 2 Figures, 4 Formulas and 1 Table.

ASSOCIATION: None

SUBMITTED: 18Apr63

DATE ACQ: 14Feb64

ENCL: 00

SUB CODE: SD, PH

NR REF SOV: 003

OTHER: 000

Card 2/2

GORN, L.S.; KHAZANOV, B.I.

Optimum thickness of an alpha-emitter in the spectrometric  
analysis of specimens of low-level radioactivity. Atom.  
energ. 16 no. 5:447-449 My '64. (MIRA 17:5)

BOOK EXPLOITATION

621.317.7.087.6:621.384

rr, L. S., and B. I. Khazanov

radiation intensity recorders (Registratory intensivnosti izlucheniya).  
Moscow: Atomizdat, 1965, 214 p. Illus., tables. Errata slip in-  
cluded. 300 copies printed.

TOPIC TAGS: radiometry, radiation intensity, radiation intensity  
recorder

PURPOSE AND COVERAGE: This book is intended for engineers and tech-  
nicians working on the design and construction of radiation intensity re-  
corders. It contains a detailed description of the principles of operation  
and construction of these devices. The book is a valuable reference for  
engineers and technicians working in the field of radiation intensity  
recording. It covers the design and construction of various types of  
radiation intensity recorders, including those used for measuring the  
intensity of gamma rays, X-rays, and other types of ionizing radiation.  
The book also discusses the calibration and use of these devices.

... in the acceptance of reduced performance characteristics  
... recording accuracy ...  
... Chuk A. I. Karpinsky, V. S. Zhelnov, A. S. Kiselevich,  
Y. A. P. Ioffe, and Y. D. Murin.

CONTENTS

... 3

... and their Role in Ballistic Apparatus -- 5

General Characteristics of Recorder Devices -- 14

... 27

Construction of Counting Devices -- 108

Recording in ...; Measurements under Variable-  
... 15

Card 2/3

- 1. Recording High-Intensity Radiation -- 119
- 2. Measuring a Wide Range of Radiation Intensity -- 219
- 3. Improving the Economy of Recorders -- 245
- 4. Recording a Large Amount of Incoming Information -- 256
- 5. -- 293

GORN, L.S.; KHAZANOV, B.I.; MELESHKO, V.K., red.

[Radiation intensity recorders] Registratory intensivnosti  
izlucheni. Moskva, Atomizdat, 1965. 301 p.  
(MIRA 18:4)

YEGOROV, I.M.; ZHERNOV, V.S.; LAZAREV, A.F.; PEROV, N.L.;  
TIMOFEYEV, A.A.; MATVEYEV, V.V., doktor tekhn. nauk,  
red.; KHAZANOV, B.I., kand. tekhn. nauk, red.;  
MELESHKO, V.K., red.

[Apparatus for recording and studying ionizing radiations; reference book] Apparatura dlia registratsii i issledovaniia ioniziruiushchikh izlucheni; spravochnik. Moskva, Atomizdat, 1965. 429 p. (MIRA 18:7)



L 34796-66 EWT(d)/EWP(1) IJP(c) BB/GG

ACC NR: AR6017203

SOURCE CODE: UR/0058/65/000/012/A035/A035

AUTHOR: Ivanov, I. D.; Khazanov, B. I.

TITLE: Economical transistor flip-flop with additional symmetry

SOURCE: Ref. zh. Fizika, Abs. 12A328 160

REF SOURCE: Tr. 6-y Nauchno-tekhn. konferentsii po yadern. radioelektron. T. 1. M., Atomizdat, 1964, 119-126

TOPIC TAGS: transistorized circuit, flip flop circuit, silicon transistor, silicon diode

ABSTRACT: The power consumed by scaler devices can be reduced by replacing the classical symmetrical flip-flop with a silicon-transistor flip-flop circuit having additional symmetry. In such a circuit, which contains two transistors of different conductivity types and five silicon semiconductor diodes, both transistors are cut-off or conducting simultaneously, and in the conducting state the current consumed can amount to  $\sim 175 \mu\text{a}$  at 6 volts. The flip flops operate well in cascade or ring circuits and make it easy to obtain an analog indication of state. A decade cell is also described, whose operating reliability is not lower than that of a binary counter, owing to application of an operational signal to the flip flops, which do not change their state at the given instant under the influence of the input signal. V. P. [Translation of abstract]

SUB CODE: 09

L 35366-66

ACC NR: AR6017803

SOURCE CODE: UR/0058/66/000/001/A061/A061

38  
B

AUTHOR: Tikhonyuk, A. I.; Khazanov, B. I.

TITLE: Apparatus for registration of minimum rise over the background intensity level

SOURCE: Ref. zh. Fizika, Abs. 1A521

REF SOURCE: Tr. Soyuzn. n.-i. in-ta priborostr. vyp. 2, 1965, 70-76

TOPIC TAGS: radiation dosimetry, pulse counting, digital computer, computer component

ABSTRACT: The authors consider the principal construction of electronic apparatus intended for registration of the minimum rise above the background level during the course of dosimetric control. The described apparatus is based on the principle of discrete counting, since it is used to register small intensity levels. Signals from the detector, following a normalization stage and gating equipment, are fed simultaneously to the inputs of the recording circuit and the system for extraction of the square root of the number of pulses. The square root extraction operation is realized during the course of a time specified by a timer device. The common timer device triggers the programmer of the summation circuit, which contains a program unit, the memory register, the transfer gates, and the pulse-count register. The operating principle of the apparatus is explained with the aid of block diagrams and electronic schematic diagrams of individual units of the instrument. A. Lebedev. [Translation of abstract]

SUB CODE: 18, 09

Card 1/1

*Edh*

L 34786-66 EWT(m)

ACC NR: AR6017216

SOURCE CODE: UR/0058/65/000/012/A062/A062

AUTHORS: Iyanov, I. D.; Khazanov, B. I.

53  
B

TITLE: Broadband recorder with detector switching

SOURCE: Ref. zh. Fizika, Abs. 12A532

REF SOURCE: Tr. Soyuzn. n.-1. in-ta priborost., vyp. 2, 1965, 57-60

TOPIC TAGS: radioactive source, radioactivity measurement, radiation counter, recording equipment, *RADIATION DETECTOR*

ABSTRACT: A broadband recorder for radioactive radiation of the discrete type is described, in which two detectors are used, one permanently connected to the input of the counting circuit, and the other switched over in accordance with the radiation level. In such a system, recording up to a definite intensity takes place with counters  $C_1$  and  $C_2$  operating in parallel. When the intensity rises, counter  $C_1$  is disconnected and only counter  $C_2$  is used for the recording. With decreasing intensity the counter  $C_1$  is again switched in. N. Zevina [Translation of abstract]

SUB CODE: 18/

Card 1/1

... and silicon semiconductor diodes, semiconductor triodes are closed or open simultaneously. In the open mode, the operating current is approximately 175  $\mu$ a with a potential of 6 volts. The flip-flops operate in a cascade or ring hookup, and permit easy analog indication of the state. A decade cell is also described in which, owing to the transmission of the OS signal to the flip-flops which do not change their state at a given time under the influence of the input signal, it is possible to obtain the performance reliability no less than that of a binary counter. 5 references. V. P.

SUB CODE: 09

Card 1/1

UDC: 621.373.545

ACC NR: AT7004418

SOURCE CODE: UR/0000/66/000/000/0099/0102

AUTHOR: Osipov, V. G.; Drobysheva, Ye. K.; Khazanov, B. I.

ORG: none

TITLE: Device for observing plastic deformation and fracture under a microscope

SOURCE: AN SSSR. Institut metallurgii. Napryazhennoye sostoyaniye i plastichnost' pri deformirovani metallov (Stress condition and plasticity during metal deformation). Moscow, Izd-vo Nauka, 1966, 99-102

TOPIC TAGS: metallographic microscope, metallurgic ~~research~~ <sup>analysis</sup>, metallographic examination, plastic deformation, material fracture/ MIM-8M metallographic microscope

ABSTRACT: The authors developed an elementary device (Fig. 1) for scrutinizing the microstructure of specimens that are tensile-tested at room temperature by stretching with the aid of a worm gear drive (manually or by means of an electric motor). The device consists of frame 1 attached to the microscope mount. Slider 4 moves in the rectangular window of the frame. Rotation of worm wheel-nut 14 causes rotational motion of the screw pulling the slider. The worm wheel-nut is connected by bearings 9 and rotated by worm 8 one end of which is linked by coupling 7 to electric motor 6 and the other end, to lever 10. Since in the existing metallographic microscopes the free distance of the lens at considerable magnification amounts to tenths of a milli-

Card 1/2

ACC NR: AT7004418

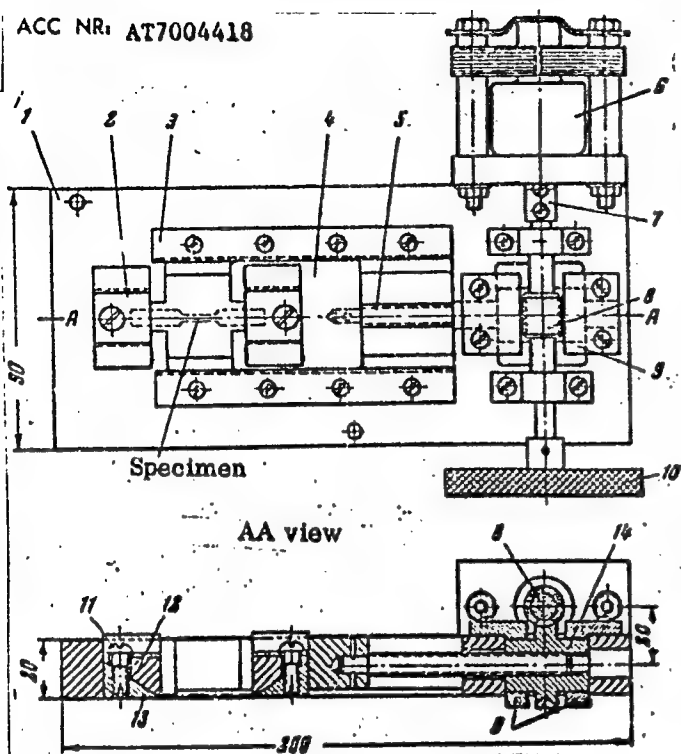


Fig. 1. Microscope attachment for observing the stretching of specimens

meter, the device is equipped with clamps for moving the plane of the specimen closer to the lens. Each clamp consists of upper wedge 12 and lower wedges 13, tightened by screw 11 and held together by plate 2. The edge of the upper wedge, adjoining the head of the specimen, is rounded so as to reduce stresses at the site of flexure of the specimen. The use of clamps of this kind admits the observation of the microstructure of specimens during deformation and fracture at a maximum magnification of 1350 times. Orig. art. has: 4 figures.

SUB CODE: 20/13/ SUBM DATE: 27Sep66

ORIG REF: 005/ OTH REF: 001

Card 2/2

KHAZANOV, B. N.

10 июня  
(с 10 до 22 часов)

В. Н. Соловьев  
Тепловые режимы полупроводниковых приборов.  
В. Н. Ветерганд  
Исследования и расчет температурной зависимости параметров полупроводниковых приборов при дрейфе тока.  
Ю. Р. Носов,  
В. Н. Хазанов  
Оптимизация температурной стабильности режимов работы на полупроводниковых приборах различных типов.  
М. А. Адамович  
О зависимости параметров планарных полупроводниковых приборов от типа структуры.  
В. П. Носович  
Шум в полупроводниковых устройствах.

11 июня  
(с 10 до 16 часов)

16

Г. Н. Буртасов  
Степень коррелируемости и переносимости параметров полупроводниковых приборов при изменении условий.  
Т. Н. Петрова,  
В. Н. Курочкин  
Исследования особенностей работы структур типа на планарных полупроводниковых приборах при изменении температуры и зависимости от параметров приборов.  
А. Ю. Горюнов  
Расчет температурного режима на транзисторах.  
В. А. Кузнецов  
О влиянии режима питания на полупроводниковые приборы на работу различных типов.

11 июня  
(с 10 до 22 часов)

Ю. Н. Аким,  
Н. Н. Соколов,  
С. Н. Чуриков  
Об особенностях работы и электрических параметров в области сильноточного режима.  
Н. С. Родина  
Влияние температурных изменений на параметры структуры приборов.

17

report submitted for the Centennial Meeting of the Scientific Technological Society of  
Radio Engineering and Electrical Communications in. A. S. Popov (VSEKES), Moscow,  
6-12 June, 1959

KHAZANOV B ye.

USHAZOV, V.A., kandidat tekhnicheskikh nauk; KARAGODIN, V.A. inzhener; MORO, A.I., inzhener; KHAZANOV, B.E., inzhener; FEDOROV, B.S., inzhener; MALITSKIY, S.I., inzhener.

Design and building of large size storm sewers. Gor.khoz. Mosk. 27 no.6:  
26-30 Je '53.

(MLRA 6:6)

(Moscow--Drainage)

KHAZANOV, B.Ye.

Meteorological observations during the solar eclipse of February 25, 1952.  
Bul. VAGO no. 14:31-36 '53. (MLRA 6:11)

1. Moskovskoye otdeleniye Vsesoyuznogo astronomo-geodezicheskogo obshchestva.  
(Atmosphere) (Eclipses, Solar--1952)



KHAZANOV, D. B.

SMOLENSKAYA, R. M. Arkh. i KHAZANOV, D. B., Kand. Arkh.

Nauchno-issledovatel'skiy institut arkhitektury i promyshlennykh sooruzheniy  
akademii arkhitektury SSSR

Osnovnyye Polozheniya po razmeshcheniyu detskikh uchrezhdeniy v mnogoetazhnykh  
Zhilykh Domakh Moskv  
Page 75

SO: Collections of Annotations of Scientific Research Work on Construction, completed  
in 1950.  
Moscow, 1951

KHAZANOV, D. B.

FEL'ZER, YU, S. Inzh. i KHAZANOV, D. B., Kand. Arkh.

Nauchno-issledovatel'skiy institut arkhitektury obshchestvennykh i promyshlennyykh sooruzheniy Akademii arkhitektury SSSR

Osnovnyye polozheniya po proektirovaniyu garazhnykh stoyanok, Vstroyennykh v mnogoetazhnyye zhilye doma moskvy

Page 76

SO: Collection of Annotations of Scientific Research Work on Construction, compiled in 1950, Moscow, 1951

KHAZANOV, D. B.

Obshchestvennyye i obsluzhivayushchiye uchrezhdeniya v mnogoetazhnykh zhilykh domakh (Common and service facilities in many storied dwellings, by) D. B. Khazanov, R. M. Smolenskaya, Yu. S. Fel'zer (i dr.) Moskva, Gos. Izd-vo Literatury po Stroitel'stvu i Arkhitekture, 1953.  
v. (v.-p.) illus., diags., tables.  
At head of title: Akademiya Arkhitektury SSSR, Moscow.  
Lib. has: v. 1.

N/5  
748.17  
.K4

PLESSEYN, B.; SHRENTSIS, A. pri uchastii: BAYAR, O.; BUKHAROV, A.;  
KOREN'KOV, V.; LEVANTIN, N.; MAKOTINSKIY, M.; ROZANOV, N.; KHAZHANOV, D.  
FRIDBERG, G.V., red.izd-va: TOKER, A.M., tekhn.red.

[Problems of unification and a unified catalog of construction elements for apartment houses and public buildings; a report]  
Voprosy unifikatsii i edinyi katalog stroitel'nykh izdelii dlia zhilishchnogo i kul'turno-bytovogo stroitel'stva; soobshchenie...  
[Moskva, Gos. izd-vo lit-ry po stroit. i arkhit., 1955] 24 p.  
[Bound with Voronkov, A. Industrializatsiia otelochnykh rabot.  
Moskva, 1955] (MIRA 11:6)

(Building) (Standards, Engineering)

KOREN'KOV, V.Ye.; KHAZANOV, D.B.; SHERENTSIS, A.A.; KUZNETSOV, G.F.,  
redaktor; DMITRIYEVA, N.L., redaktor izdatel'stva; MEDVEDEV, L.Ya.,  
tekhnicheskiy redaktor

[Unification of three-dimensional planning units and construction  
elements of mass-produced apartment houses and public buildings]  
Unifikatsiia ob'emno-planirovochnykh i konstruktivnykh elementov  
zhilykh i obshchestvennykh zdanií massovogo stroitel'stva. Pod  
obshchei red. G.F.Kuznetsova. Moskva, Gos. izd-vo lit-ry po stroit.  
i arkhitekture, 1956. 140 p. (MLRA 9:9)

1. Chlen-korrespondent Akademii arkhitektury SSSR (for Kuznetsov)  
(Building) (Architecture--Designs and plans)

KHAZANOV, D.E., kand. arkhitektury; FRIDBERG, G.V., red. izd-va; MAGISHKIN,  
T.M., tekhn. red.

[Standardized parameters of spatial-design elements for public  
buildings; heights of stories, spans, steps] Unifitsirovannye  
parametry ob"emno-planirovochnykh elementov obshchestvennykh  
zdanii (vysota, etazhei, prolety, shagi). Moskva, Gos. izd-vo  
lit-ry po stroit. i arkhitekt., 1957. 37 p. (MIRA 11:7)  
(Building)

AUTHOR: Khazanov, D. B., Candidate Architect SOV/28-50-1-5-/29

TITLE: The Development of the Modular Coordination in Industrial Construction (Razvitiye modul'noy koordinatsii v usloviyakh industrial'nogo stroitel'stva)

PERIODICAL: Standartizatsiya 1959, Nr 1, pp 18 - 24 (USSR)

ABSTRACT: The present modulation system for designing industrial assembly structures and prefabricated parts is here analyzed. A module of 60 cm is proposed by the author as allowing the transition to a single measuring system in building construction. The transition to the 60 cm modulus preserves the basis of whole present system of designing living, industrial and rural structures. Table 2 illustrates the proposed system of modular dimensions recommended for designing the assembly structures. There are 3 diagrams, 2 tables, 1 graph and 7 Soviet references.

Card 1/2

SOV/28-59-1-5/59

The Development of the Modular Coordination in Industrial Construction

ASSOCIATION: Akademiya stroitel'stva i arkhitektury SSSR (Academy of  
Construction and Architecture, USSR)

Card 2/2



KHAZANOV, D.B., kand.arkhitektury

Derivative modules for buildings for different purposes. Izv.  
ASIA no.4:31-45 '60. (MIRA 1414)  
(Buildings, Prefabricated)  
(Modular coordination (Architecture))

KHAZANOV, D.B., kand. arkh.; MAGIDIN, I.N., kand. arkh., nauchnyy red.;  
SHERSTNEVA, N.V., tekhn. red.

[Standardization of elements for buildings for various purposes]  
Unifikatsiia elementov zdani i razlichnogo naznachenii; sbornik  
materialov. Pod red. D.B.Khazanova. Moskva, Gosstroizdat,  
1962. 173 p. (MIRA 15:12)

1. Akademiya stroitel'stva i arkhitektury SSSR. Institut obshche-  
stvennykh zdani i sooruzheniy.

(Standards, Engineering)

(Modular coordination (Architecture))

18  
Insulation for electric furnace inductors. I. A. Kuznetsov,  
N. Maslov, and B. E. Kharanov. USSR 154317  
Nov. 25, 1980. Insulating the inductors of electric  
furnaces operating in vacuo at >800 V is made of composite  
materials. It has an inside layer of glass fibers  
impregnated with silicone resin and an outside layer of glass fibers  
with an org. silicone rubber. M. Kuznetsov.

MARMER, E. N. and CHASANOV, E. E.  
Bureau of Electric Furnaces, Moscow.

"Experimental Works," "Electric Furnace in Vacuum Furnace Construction  
Field."

paper presented at Second Symposium on the Application of Vacuum Metallurgy.

*1-6 July 1958, Moscow*

NOV/110-58-8-11/26

AUTHORS: Fel'dman, I.A., Marmer, E.N., and Khazanov, E. Ye.  
(Engineers)

TITLE: An Insulated Inductor for Vacuum-type Induction Furnaces  
(Izolirovannyi induktor dlya vakuumnykh elektricheskikh  
pechey)

PERIODICAL: Vestnik Elektromyashlennosti, 1958, Nr 8, pp 36-39 (USSR)

ABSTRACT: Vacuum induction furnaces are becoming widely used, but are liable to electrical breakdown in vacuum at voltages above 400 V. Abroad, inductors have been insulated with ceramic coatings to permit of operation at up to 800 V. The authors have developed a design and insulation for a high-voltage inductor which has been tested at up to 2000 V. The special features of electrical breakdown in vacuum furnaces are discussed; it is facilitated by the high operating temperature, the strong magnetic field and the presence of metal vapour in the discharge space. The insulation on the inductors of metal-melting furnaces is subjected to particularly severe duty which cannot be sustained by ceramic coatings. Attempts were therefore made to develop multi-layer coatings of insulation which, although less fire-resistant than ceramics, would be more

Card 1/4

SOV/110-58-2-11/26

An Insulated Inductor for Vacuum-type Induction Furnaces

reliable. The suitability of the insulating materials selected was assessed by tests of vapourisation at various temperatures in vacuum. The materials were adhesive insulating tape, varnished glass cloth grade LSK-7 and rubberised glass cloth grade RSK-1. The amount of material that vapourised was assessed from loss of weight. The rate of vapourisation as a function of temperature when maintained for two hours in a vacuum of  $4 \times 10^{-2}$  mm.Hg is shown in Fig 1. Intensive evaporation (greater than 2gm per m<sup>2</sup>hour) commences at 150°C for flexible tape, 240°C for varnished glass cloth and 400°C for rubberised glass cloth. As will be seen from the graph in Fig 2, all the materials practically cease to lose weight after 4 hours at 250°C. As a result of the tests, the insulating material selected for temperatures up to 200°C was flexible tape, and for higher temperatures up to 500°C rubberised cloth grade RSK-1. The electrical insulating layer consists of a varnished film sprayed on to a carefully prepared surface; each coating is thoroughly dried before the next is applied. The inductor

Card 2/4

SOV/110-52-8-11/26

An Insulated Inductor for Vacuum-type Induction Furnaces

is then taped with adhesive glass tape and then with rubberised glass cloth. The total insulation thickness is about 1 mm. The thermal conductivity of the insulation was determined because it was needed for design purposes: using a test procedure which is described, determinations were made over the temperature range 100 - 500°C, and the thermal conductivity of the insulation was found to be 0.15 kcal/m.hr.°C. Tests on insulated inductors were made in a steel-melting vacuum furnace. During the tests the voltage was maintained at 1 kV. The inductor was observed to be luminous in the pressure range  $4 \times 10^{-2}$  -  $5 \times 10^{-1}$  mm.Hg. The appearance was that of corona discharge but there was no electrical failure of the insulation. After these laboratory tests a full-scale inductor, whose characteristics are tabulated, was made up for a 1000-V melting furnace. As the inductor remained in operation for a considerable time without trouble, it was decided to attempt insulation capable of withstanding 2000 V and more. This successfully withstood 2000 V, and after many tests had been made without a furnace charge, a charge was simulated by

Card 3/4

SOV/110-58-8-11/26

An Insulated Inductor for Vacuum-type Induction Furnaces

a graphite electrode installed in the inductor off centre, 30 mm from the surface. The electrode was surrounded by heat insulation and the rest of the space inside the inductor was filled with heat-resisting bricks. During this series of tests the temperature of the graphite rose to 1500°C and breakdown did not occur at pressures down to  $1 \times 10^{-3}$  mm Hg. Tests were also made with an atmosphere containing aluminium vapour without failure. It is concluded that inductors can be constructed for operation at 2 kV, and that they will make it possible to design high-power vacuum induction-furnaces of high efficiency and simpler design.

There are 2 figures and 4 references, 2 of which are Soviet, 1 English and 1 German.

SUBMITTED: November 18, 1957

1. Vacuum furnaces--Equipment
2. Electric insulation--Performance

Card 4/4



Khazanov E. Ye.

32-1-46/55

AUTHORS: Marmer, E.N., Khazanov, E.Ye.

TITLE: On the Application of a Halogen Leak Detector in the Construction of Electric Furnaces (O primeneni galoidnogo techeiskatelya v elektropchestroyenii).

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 1, pp. 110-110 (USSR)

ABSTRACT: Such an apparatus, which is known as "ГТН-1А", is already been used at various plants in the USSR. It has, however, the disadvantage that it is extremely sensitive to smoke, which cannot be avoided in such plants in which welding and similar work is carried out. In this paper a new construction of such an apparatus is suggested in which this disturbing sensitivity is reduced to a minimum and can also be adjusted in a suitable manner. For this purpose the branch lines are here led from the second winding of the ferroresonance stabilizer of the transformer to the switchboard. For the purpose of adjusting the apparatus in order to obtain its necessary sensitivity, a special supplementary device is recommended, which is described as follows: For the purpose of testing the leakages of the electro-vacuum furnace to be examined, Freon, which boils easily, is used. The surplus of Freon gas is conveyed through a

Card 1/2

On the Application of a Halogen Leak Detector in the  
Construction of Electric Furnaces

32-1-46/55

glass tube to the supplementary device, where, at the one hand, its pressure is measured by means of a liquid manometer, and, on the other hand, it is conveyed further through a gate valve into a closed vessel. Connection with the vessel is then severed by closing the valve, and compressed air is let in through another pipe and another gate valve. The second valve is then also closed and the pressure attained is measured by the manometer provided for this purpose. The two-way valve on the vessel containing the gas mixture is then slowly opened, so that only such a small quantity of the mixture escapes as is supposed to correspond to the loss of gas through leakages in the walls of the furnace. On the other hand, pressure in the vessel is brought about by means of a knee pipe in one end of the pipe which is placed vertically into the water, causing a difference between the level of the water in the glass and that in the pipe. The velocity with which the gas flows out through the valve can be observed by the gradually diminishing difference between the water level in the glass and that in the tube. There is 1 figure.

AVAILABLE:

Library of Congress

Card 2/2

1. Leaks-Determination 2. Freon 3. Instrumentation-Design

*KH. 424 NOV, E. YE.*

110-3-17/22

AUTHORS: Marmer, E.N., Engineer, Khazanov, E.Ye., and  
Barabanova, L.G., Engineers.

TITLE: Experience with the Use of Ceramic Linings in High-vacuum  
Furnaces (Opyt primeneniya keramicheskikh futerovok v  
vysokovakuumnykh pechakh)

PERIODICAL: Vestnik Elektropromyshlennosti, 1958, Vol.29, No.3,  
pp. 69 - 70 (USSR)

ABSTRACT: At present, metal screens are commonly used as thermal insulation in vacuum electric furnaces, but are not very satisfactory. Nor can the ceramic materials used for open furnaces be applied successfully. Until recently, it has been supposed that only very dense ceramics could be used in vacuum furnaces. Before using porous ceramic, the conditions of desorption of gas from it at different temperatures, and the conditions of passage of the gas through the ceramic wall had to be investigated. To determine the quantity of gas separated in vacuo, the installation depicted in Fig. 1 was developed. It has a tubular working chamber, a diffusion pump with a speed of 40 litres/sec, a backing pump and suitable traps. The chamber is water-cooled and the heater is a cylinder of molybdenum foil. Gas that separated from the specimen was estimated from the pressure change that occurred whilst the specimen was maintained

Card1/3

110-3-17/22

Experience with the Use of Ceramic Linings in High-vacuum Furnaces

at a temperature of 500 °C. The quantity of gas evolved on heating samples of lightweight chamotte at 500 °C ranges from 0.067 - 0.206 cm<sup>3</sup> per gram when the material is treated for the first time. On repeated pumping, the quantity of gas evolved is much smaller. The work showed that porous ceramic of this kind can quite easily be de-gassed at pressures of 10<sup>-5</sup> mm mercury. In order to determine the rate of evolution of gas from the material, it is necessary to determine the rate of gas diffusion through it. A special equipment, developed for this purpose, employed a diffusion pump with a rate of 500 litres per sec. with a suitable backing pump. The working chamber was lined with lightweight chamotte in which the heater was fixed. The tube under test was fitted in the centre of the furnace chamber. The passage of gas through the walls of tubes of Al<sub>2</sub>O<sub>3</sub> and chamotte was measured. Once the quantity of gas that separates from the linings and the diffusion rate are known, the size of pump required for a furnace can be calculated. A vacuum furnace with chamotte lining was constructed and has operated since 1953 at pressures of the order of 10<sup>-4</sup> mmHg and at temperatures up to 1 200 °C. Titanium has been heated in this furnace and after being maintained at a temperature of

Card2/3

110-3-17/22

Experience with the Use of Ceramic Linings in High-vacuum Furnaces

850 °C for four hours, it remained bright. Tests have also been made on annealing of magnetic alloys of the permalloy type; again, the surfaces were unspoiled, and the magnetic properties were much improved. A furnace of similar construction but with a large ceramic chamber intended for heat-treatment of magnetic alloys has been working for two years at an instrument works. There are 1 figure, 1 table and 2 Russian references.

ASSOCIATION: Design Office of the Trust "Elektropech"  
(OKB tresta "Elektropech")

AVAILABLE: Library of Congress  
Card 3/3

1. Vacuum furnaces-Insulation 2. Ceramics 3. Insulation-Test  
methods 4. Insulation-Test results

KHAZANOV, G.A.

Perforation of an osteomyelitic abscess of the pubic bone into the urinary bladder with intravesical formation of calculi. *Urologia* 24 no.5:64-65 S-O '59. (MIRA 12:12)

1. Iz urologicheskoy kliniki (zav. - prof. A.Ya. Pytel') II Moskovskogo meditsinskogo instituta na baze 1-y gorodskoy klinicheskoy bol'nitsy imeni N.I. Pirogova.

(URINARY CALCULI, compl.)

(BLADDER dis.)

(OSTEOMYELITIS compl.)

(PUBIC BONE dis.)

KHAZANOV, G. A.

Intra-arterial blood infusion in urological operations. Urologia  
no.6:20-26 '61. (MIRA 15:4)

1. Iz urologicheskoy kliniki (zav. - prof. A. Ya. Pytel') II  
Moskovskogo meditsinskogo instituta imeni N. I. Pirogova.

(UROLOGY) (BLOOD—TRANSFUSION)

KHAZANOV, G.A.

Complications during extraction of ureteral calculi with a  
ureteral snare. Urologiia no.1:58-59'63. (MIRA 16:7)

1. Iz urologicheskoy kliniki (zav. - prof. A. Ya Pytel') II  
Moskovskogo meditsinskogo instituta imeni N.I.Pirogova.  
(CALCULI, URINARY) (URETERS—SURGERY)



KHAZANOV, G. I.

Mechanization of lowering and hoisting operations in the  
"Dneprogeologiya" Trust, Razved, 1 okh. nedr 28 no.5:29-32  
My '62. (MIRA 15:10)

1. Trest "Dneprogeologiya".

(Boring—Equipment and supplies)

SOV/106-59-3-9/12

AUTHOR: Khazanov, G.L.

TITLE: The Synthesis of Active RC-Filters from a Given Transfer Admittance (Sintez aktivnykh RS-Fil'trov po zadannoy provodimosti peredachi)

PERIODICAL: Elektrosvyaz', 1959, Nr 3, pp 63-72 (USSR)

ABSTRACT: The design of adequate selective circuits at low frequencies is difficult because inductances are either difficult or impossible to realise. Resistance-capacitance circuits are favoured but they often require a large number of elements. The proposal made here is to introduce two kinds of active circuit, one is a gyrator and the other a negative resistance convertor. The transfer admittance of the circuit is given in expanded form in Eq (3) where  $p_1, p_3$ , etc are the zeros of the function and  $p_2, p_4$ , etc are the poles. It has been shown by Bode (Ref 8) that the poles of the transfer admittance of a passive RC circuit must always lie in the real negative half of the plane of complex frequency. The most desirable filters in practice are those whose characteristics correspond either to a Butterworth polynomial, a Chebyshev polynomial or a Zolotarev fraction.

Card 1/4

SOV/106-59-3-9/12

The Synthesis of Active RC-Filters from a Given Transfer Admittance

The attenuation diagrams and pole-zero plots corresponding to these functions are shown in Fig 1. It will be obvious that they cannot be directly realised by means of a passive RC-circuit. The analysis used in the method proposed in this paper is simplified if we consider the theorem of decomposition of circuits into different components. This is illustrated in Fig 2. A circuit which is to be specified by a transfer admittance is conveniently considered as consisting of two four-pole networks connected in cascade; the theorem is derived in Ref 1. Interest centres round the case when the roots of the numerator of Eq (8) are complex; Eq (8) is in turn the denominator of the required transfer admittance function. The second four-pole of Fig 2b can be realised if there is connected between it and the first four-pole a network having the properties of a gyrator (such a circuit is shown in Fig 3a). A possible realisation using a single transistor is shown in Fig 3b. One example studied in detail is the realisation of an active

Card 2/4

SOV/106-59-3-9/12

# The Synthesis of Active RC-Filters from a Given Transfer Admittance

RC-filter with a maximally-flat attenuation characteristic of the second order as in Eq (25). The resulting circuit is shown in Fig 45 when the terminations are  $600\Omega$  and the transistor used is a type PiZh. The insertion of a gyrator-type circuit is convenient when the number of poles is 2 or 3. When this number is greater, a negative resistance convertor is more convenient. Such circuits have been described previously (Ref 14); a suitable circuit is shown in Fig 6. A second example dealt with in detail is the synthesis of a third-order Butterworth characteristic given by Eq (40); a resulting circuit is shown in Fig 76 for  $600\Omega$  terminations and a cut-off frequency of 500 c/s. The experimental verification of the results obtained is illustrated in Fig 9 and 10. In Fig 9, curve a represents the calculated response of the second order Butterworth circuit, curve 6 the third-order response, curve B a Chebyshev response. In Fig 10 both curves refer to band filters. The values obtained experimentally are marked with dots or crosses. When

Card 3/4

SOV/106-59-3-9/12

The Synthesis of Active RC-Filters from a Given Transfer Admittance

account is taken of the tolerances of the components and the fact that the active circuits are far from ideal, the agreement between theory and practice is considered to be rather good. There are 10 figures and 15 references, 7 of which are Soviet, 7 English and 1 German.

SUBMITTED: 12th May 1958

Card 4/4

11701

S/106/61/000/012/005/010

A055/A127

9.2520 (1150, 1154, 1161)  
AUTHOR: Khazanov, G. L.

TITLE: Synthesis of selective amplifiers with negative feedback

PERIODICAL: Elektrosvyaz', no. 12, 1961, 36 - 40

TEXT: The author examines a method of synthesizing active RC-filters consisting of a transistorized current-amplifier and of a resistance-capacitance feedback circuit. This method permits to synthesize complicated RC-circuits, to obtain systems with the optimum number of elements and to avoid the use of multi-stage circuits. The system shown in a figure, consists of a transistorized current-amplifier and of two resistance-capacitance four-poles. The selective properties of this system are fully determined by its transfer function

$$H(\omega) = \frac{\alpha_{TY21a} \left( 1 + \frac{y_{21b}}{g_{11T}} \right)}{(g_{load} + g_{22T} + y_{22b}) \left[ 1 + \frac{y_{11b} + y_{22a}}{g_{11T}} + \frac{\alpha_{TY21b}}{g_{load} + g_{22T} + y_{22b}} \left( 1 + \frac{y_{21b}}{g_{11T}} \right) \right]} \quad (1)$$

Card 1/6

312C1

S/106/61/000/012/005/010

Synthesis of selective amplifiers with negative feedback A055/A127

where  $y_{11a}$ ,  $y_{22a}$  and  $y_{11b}$ ,  $y_{21b}$ ,  $y_{22b}$  are the elements of the  $[y]$ -matrix of the four-poles.  $g_{11T}$  and  $g_{22T}$  are, respectively, the input and output conductance of the amplifier (with short-circuited terminals) and  $\alpha_T$  is its current amplification factor (with short-circuited output);  $g_{load}$  is the load conductance. If the inequalities;

$$y_{21b} \ll g_{11T} \quad (2) \quad \text{and} \quad y_{22a} + y_{11b} \ll g_{11T} \quad (3)$$

are satisfied, the transfer function can be simplified and written as follows:

$$H(\omega) = \frac{\alpha_T y_{21a}}{y_{22b} (1 + \alpha_T y_{21b} / y_{22b})} \quad (4)$$

where  $y_{22b} = y_{22b} + g_{22T} + g_{load}$ . After explaining how (2) and (3) can be satisfied, the author proceeds to determine the parameters of the RC-circuits of the two four-poles. The function describing the behaviour of the synthesized system in the complex frequency plane is, in the general case:

$$H(p) = A \frac{(p-p_1)(p-p_3)(p-p_5)\dots}{(p-p_2)(p-p_4)(p-p_6)\dots} = A \frac{M(p)}{N(p)} \quad (6)$$

Card 2/6

31201

S/106/61/000/012/005/010

Synthesis of selective amplifiers with negative feedback A055/A127

Representing the polynomial  $N(p)$  as

$$N(p) = B_1 N_1(p) + B_2 N_2(p), \quad (7)$$

where  $B_1$  and  $B_2$  are real positive numbers, and choosing a certain polynomial with real negative roots  $Q(p)$ , it is possible to write (6) as follows:

$$H(p) = \frac{A \cdot M(p)/Q(p)}{B_1 N_1(p)/Q(p) \left[ 1 + \frac{B_2 N_2(p)/Q(p)}{B_1 N_1(p)/Q(p)} \right]} \quad (9)$$

Comparison of (9) and (4) gives:

$$y_{21a} = M(p)/Q(p), \quad (10)$$

$$y_{22b} = y_{22b} + s_{22T} + s_{load} = N_1(p)/Q(p), \quad (11)$$

$$y_{21b} = N_2(p)/Q(p), \quad (12)$$

$$\alpha_T = B_2/B_1, \quad (13)$$

Certain limitations have to be imposed on the polynomials  $N_1(p)$ ,  $N_2(p)$  and  $Q(p)$ .

Card 3/6



31201

S/106/61/000/012/005/010

Synthesis of selective amplifiers with negative feedback A055/A127

to realize the four-poles physically as resistance-capacitance circuits. Stating these limits, the author says that the instability of the frequency response of the synthesized system can be estimated by the ratio between the percentage variation of the modulus of  $H(i\omega)$  and the percentage variation of the current amplification factor of the amplifier. This ratio can be considered as the sensitivity of the system:

$$S = \frac{d|H(i\omega)|/d\omega}{|H(i\omega)|/d\omega} \quad (14)$$

Taking into account (4), (7) and (10) to (13), we can write:

$$S = B_1 |N_1(i\omega)/N(i\omega)| \cos[\varphi_1(\omega) - \varphi(\omega)], \quad (16)$$

where  $\varphi(\omega)$  and  $\varphi_1(\omega)$  are, respectively, the arguments of the polynomials  $N(i\omega)$  and  $N_1(i\omega)$ . This shows that  $S$  depends on the choice of the roots of  $N_1(p)$ . The author explains briefly how this choice must be made. The polynomial  $N_1(p)$  being chosen, the roots of  $N_2(p)$  can be deduced from (7):

$$N(p) - B_1 N_1(p) = 0. \quad (17)$$

Certain difficulties may here arise if the power of the given function  $H(p)$  is suf-

Card 4/6

S/106/61/000/012/005/010

A055/A127

Synthesis of selective amplifiers with negative feedback

efficiently great. One of the methods of overcoming them consists in using the method of root hodographs [Ref. 4: D. Traskel. Sintez sistem avtomaticheskogo regulirovaniya. (Synthesis of automatic regulation systems), Mashgiz, 1959]. It can be deduced from (17) that:

$$|N_1(p)/N(p)| = \frac{1}{B_1}; \arg [N_1(p)/N(p)] = 2k\pi. \quad (19)$$

The roots of the polynomial are situated on the hodograph determined by (19). To each point of the hodograph corresponds a concrete value of  $B_1$ . This value must be chosen as small as reasonably possible. When the powers of  $N_1(p)$  and  $N_2(p)$  are equal:

$$B_1 + B_2 = 1. \quad (20)$$

Then:

$$\alpha_T = \frac{1-B_1}{B_1} \quad (21)$$

and

$$S = \frac{1}{1+\alpha_T} |N_1(i\omega)/N(i\omega)| \cos[\varphi_1(\omega) - \varphi(\omega)]. \quad (22)$$

The described synthesis method permits to determine the parameters of the circuits

Card 5/6

31201

S/106/61/000/012/005/010

Synthesis of selective amplifiers with negative feedback AO55/A127

of the two four-poles. On the basis of these parameters and using one of the well-known methods (for instance, the "Dasher" method), it is possible to synthesize the resistance-capacitance four-poles. There are 1 figure and 4 Soviet-bloc references. The names of Soviet authors or scientists mentioned in the article are: D. Traskel, G. Bode, E. A. Saakov and V. M. Shteyn (Radiotekhnika, 1950, no. 1).

SUBMITTED: February 16, 1961

Card 6/6

34833

S/106/62/000/003/003/010  
A055/A101

9.1400 (1127)

AUTHOR: Khazanov, G.L.

TITLE: Attenuation in a uniform line with an evenly distributed load

PERIODICAL: Elektrosvyaz', no. 3, 1962, 19 - 22

TEXT: In this article are deduced formulae giving the attenuation increment and the return loss in a uniform line with an evenly distributed load as a function of the impedance of this load. A uniform line with an evenly distributed load  $z$  can be represented by the fourpole A of Fig. 2. This fourpole, in its turn, can be represented (Fig. 3) as a cascade connection of  $n$  similar and simpler fourpoles ( $l$  being the total length of the line). To determine the transmission constant ( $GA_1$ ) and the characteristic impedance ( $z_{A1}$ ) of the system of Fig. 3, the author considers this system as a connection of three elementary fourpoles, and writes:

$$\|a\|_1 = \|a\|_z X \|a\|_{\text{line}} X \|a\|_z \quad (1)$$

where  $\|a\|_1$  is the resultant matrix of the system,  $\|a\|_z$  are the matrices of

Card 1/2

Attenuation in a uniform.....

S/106/62/000/003/003/010  
A055/A101

the extreme fourpoles and  $\|a\|$  line is the matrix of a line section with parameters  $\gamma$  and  $z_c$ . Developing (1), using the tables of Zelyakh and the formulae relating the characteristic parameters of the fourpole to the "parameters-coefficients" of Akul'shin, Koshcheyev and Kul'batskiy ["Teoriya svyazi po provedam" (Wire communication theory), Svyaz'izdat., 1940], the author deduces a set of formulae giving the transmission constant and the characteristic impedance, first for the system of Fig. 3, and then for the fourpole A of Fig. 2. Using these formulae, he calculates the attenuation increment caused in the line by the switching on of telemetering information data units. The expression giving this increment is:

$$\Delta b = (n + 1)\epsilon_1 \quad (16)$$

$\epsilon_1$  being determined by:

$$\text{th}\epsilon_1 = \frac{z_c}{2z}$$

Using the same set of formulae, the author deduces also an expression giving the return loss for the examined line. In conclusion he says that, with the aid of the above expressions, it is possible to choose the output impedance of the data units, according to the permissible attenuation increment and return

Card 2/3

KHAZANOV, G.L.

Fading in a homogeneous line with an evenly distributed load.  
Elektrosviaz' 16 no.3:19-22 Mr '62. (MIRA 15:4)  
(Radio lines)

L 19945-63

3DS

ACCESSION NR: AP3006949.

S/0106/63/000/009/0034/0042

AUTHOR: Khazanov, G. L.

2B

TITLE: Method of synthesizing RC circuits

SOURCE: Elektrosvyaz', no. 9, 1963, 34-42

TOPIC TAGS: RC circuit

ABSTRACT: As the realization of complex-zero transfer functions is the most difficult part in synthesizing passive RC circuits, and as B. J. Dasher's procedure for cascade realization involves a great deal of mathematical work, the author suggests a generalized Dasher method which requires far less computations. One terminal pole in the transfer-admittance function is replaced by two terminal poles, which introduces some complications into the section structure but eliminates the  $g_0/b_0$  conditional equation. A  $\Pi$ -network represents the remainder function. It is claimed that the improved method permits fairly rapid

Card 1/2

L 19945-63

ACCESSION NR: AP3006949

determination of the structure and evaluation of components of the RC circuit without complicated computations. The greater number of components is offset by the elimination of the first (zero-shifting function) branch. Orig. art. has: 4 figures, 29 formulas, and 2 tables.

ASSOCIATION: none

SUBMITTED: 30Nov62

DATE ACQ: 30Sep63

ENCL: 00

SUB CODE: GE

NO REF SOV: 001

OTHER: 001

Card 2/2



KHAZANOV, G.M.

Information center is a reliable intermediary. Izobr.i rats.  
no.4:22-23 Ap '62. (MIRA 15:4)

1. Zamestitel' direktora Gosudarstvennogo instituta nauchnoy i  
tekhnicheskoy informatsii.  
(Technology--Information services)

GOL'DBERG, Mikhail Markovich; ZAKHAROV, Vasilii Aleksandrovich; KAZANSKIY, Yuriy Nikolayevich; LEONT'YEVA, Valentina Petrovna; LOSEV, Ivan Platonovich, doktor khim.nauk, prof.; TROSTYANSKAYA, Yelena Borisovna, doktor tekhn.nauk, prof.; KHAZANOV, Grigoriy Mikhaylovich; CHEBOTAREVSKIY, Vladimir Vladimirovich; SHEYDEMAN, Igor' Yur'yevich; BONDAREV, V.S., inzh., retsenzent; PANSHIN, B.I., kand. tekhn.nauk, nauchnyy red.; TUBYANSKAYA, F.G., izdat.red.; ROZHIN, V.P., tekhn.red

[Nonmetallic materials and their use in airplane construction]  
Nemetallicheskie materialy i ikh primeneniye v aviastroenii. Pod obshchey red. I.P.Loseva i E.V.Trostianskoi. Moskva, Gos. izd-vo obor. promyshl., 1958. 428 p. (MIRA 11:7)

1. Kafedra "Tekhnologiya obrabotki nemetallicheskih materialov" Moskovskogo aviatsionnogo tekhnologicheskogo instituta i kafedry "Materialovedeniye" Moskovskogo aviatsionnogo ordena Lenina instituta imeni S.Ordzhonikidze (for all except Bondarev, Panshin, Tubyanskaya, Rozhin)

(Airplanes--Design and construction)  
(Nonmetallic materials)

KHAZANOV, G.M.

Brush polishing wheels. Mashinostroitel' no.11:14-15 H '61.  
(Grinding wheels) (MIRA 14:11)

KHAZANOV, G.M.

Efficiency of the use of compressed wood for machine parts.  
Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch. 1 tekhn.  
inform. 16 no.5:29-32'63. (MIRA 16:7)  
(Wood, compressed) (Machinery industry) —